

CLAIMS

1. A fuel pump having a driven impeller (15) facing a casing part (14), with rings of guide vanes arranged in the impeller concentrically enclosing one another and defining blade chambers, with partially annular fuel feed ducts (21, 22) facing the rings of guide vanes in the casing part, and with outlet ducts connected to the partially annular ducts, the rings of the blade chambers and the partially annular ducts forming a radially inner delivery chamber and a radially outer delivery chamber, characterized in that a radially outer delivery chamber (17) is connected to a radially inner delivery chamber (16) via a connecting duct (29).
2. The fuel pump as claimed in claim 1, characterized in that the connecting duct (29) is arranged in the casing part (14) and connects partially annular ducts (21, 22).
3. The fuel pump as claimed in claim 1 or 2, characterized in that the connecting duct (29) takes the form of a groove arranged in the casing part (14).
4. The fuel pump as defined in claim 1, characterized in that the connecting duct (29) points away from the radially outer delivery chamber (17) towards the radially inner delivery chamber (16) viewed in the direction of rotation of the impeller (15).
5. The fuel pump as defined in claim 1, characterized in that connections (33, 34) of the connecting duct (29) connect to the radially inner and the radially outer delivery chambers (16, 17) are laid so that at a rated speed of the impeller (15) the same pressure prevails on both connections (33, 34).
6. The fuel pump as defined in claim 2, characterized in that an initial section (30) of the connecting duct (29) connected to the radially outer, partially annular duct (22) is inclined by a designated angle α to the straight line taken through the axis of rotation of the impeller (15).
7. The fuel pump as defined in claim 2, characterized in that a terminal section (31) of the connecting duct (29) opening into the radially inner, partially annular duct (21) is inclined by a designated angle β to the straight line taken through the axis of rotation of the impeller (15).

8. The fuel pump as defined in claim 6 or 7, characterized in that the angle α and/or the angle β is/are approximately 45° .
- 5 9. The fuel pump as defined in claim 2, characterized in that the connecting duct (29) has a middle section (32) arranged concentrically between the partially annular ducts (21, 22).
- 10 10. The fuel pump as defined in claim 1, characterized in that the impeller (15) has a smooth surface in its area facing the connecting duct (29).
11. The fuel pump as defined in claim 1, characterized in that the connecting duct (29) is in the form of a groove is deeper than it is wide.
- 15 12. A fuel feed system for an internal combustion engine of a motor vehicle having a fuel pump with an impeller (15) for drawing fuel from a fuel tank and delivering the fuel to the internal combustion engine, characterized in that the pump has a radially outer delivery chamber (17) that is connected to the internal combustion engine (2) and a radially inner delivery chamber (16) that is connected to a jet pump (23) arranged inside a fuel tank (3).
- 20 13. The fuel feed system as defined in claim 12, characterized by a control device for regulating the power output of an electric motor (7) driving the impeller (15) as a function of the fuel demand of the internal combustion engine (2).